AME 513 – Principles of Combustion – Fall 2012

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Textbooks
• PDR’s lecture notes (to be distributed)
• Prof. Egolfopoulos’s AME 513 course notes (to be distributed)
• Steven R. Turns, An Introduction to Combustion: Concept and Applications, 3rd Ed., 2012

Optional references
• Combustion, Flames, and Explosions of Gases, by Bernard Lewis and Guenther von Elbe, 3rd

Schedule: 1 lecture per week, Fridays 9:00 – 11:50 am, OHE 100D

Midterm exam: Friday Oct. 19, 9:00 am – 10:30 am

Final exam date: Monday, Dec. 17, 11:00 am – 1:00 pm

Recommended preparation: AME 310 (thermodynamics), AME 309 (Fluid Mechanics) and AME
331 (Heat transfer) or equivalents

Grading:
• Homework (30%) (4 homework assignments, lowest grade dropped, 10 points per day
  penalty for late assignments)
• Midterm exam (30%)
• Final exam (40%)
Topics:
- Introduction (1 week)
- Building blocks
  - Chemical Thermodynamics (2 weeks)
  - Chemical Kinetics (3 weeks)
  - Transport Phenomena (1 week)
- Combining the building blocks
  - Conservation Equations (1 week)
  - Premixed Flames (3 weeks)
  - Non-Premixed Flames (3 weeks)

Further information: http://ronney.usc.edu/AME513S12/